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From Innovation to Impact: How AI Tech - **Generative** and **Agentic AI** Are Redefining **the Payment** **Industry**

May 2025





Preface

The payments industry is undergoing a significant transformation. As digital transactions become the backbone of global commerce, the infusion of advanced artificial intelligence—particularly Generative AI and Agentic AI—is revolutionizing the way payments are designed, processed, and safeguarded.

Generative AI and Agentic AI are fundamentally reshaping the payments industry, moving it from traditional, reactive systems to intelligent, proactive ecosystems. This isn't just an upgrade; it's a fundamental shift away from static, rule-driven systems towards intelligent, self-adapting ecosystems. These advanced AIs are not just improving current processes; they are redefining how payments are initiated, processed, and secured for the future.

Generative AI is automating intricate workflows, generating contextually rich insights, and enabling dynamic, human-like engagement across all customer interactions. This allows financial institutions to deliver deeply personalized experiences, streamline operations, and accelerate innovation at an unprecedented pace.




Building on this, Agentic AI introduces a new level of autonomy in decision-making. These intelligent agents actively detect and prevent fraud, optimize transaction flows, and adapt in real time by learning from user behavior—delivering smarter, more resilient payment systems and boosting customer trust.

Generative and Agentic AI are shaping a smarter, more inclusive payments future. Early adopters will lead with seamless, intelligent experiences

In this white paper, we explore how Generative AI is reshaping the future of payments and examine the emerging role of Agentic AI in driving the next wave of innovation. This paper addresses key themes including the evolution of Generative and Agentic AI within the payments ecosystem, the opportunities and challenges these technologies present, and the critical use cases that are shaping their adoption. We also analyze current adoption trends and spotlight leading solution providers that are pioneering advancements in this space.

Our goal is to offer thought leadership for business leaders, and innovators—equipping them with the insights needed to harness the transformative potential of Generative and Agentic AI in building intelligent, secure, and future-ready payment systems.

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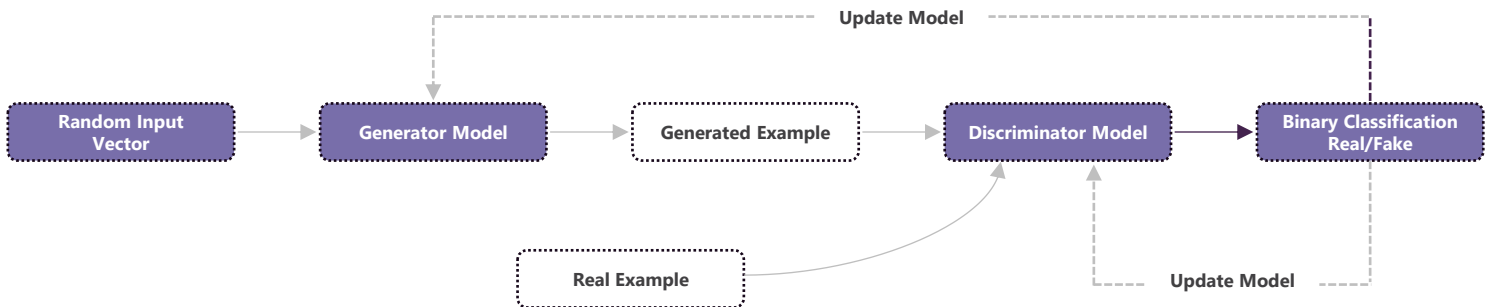
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Generative AI: Overview

What is Gen AI?

Generative AI (Gen AI) is a subset of artificial intelligence focused on producing original content, including text, images, video, audio, code, and more, based on user inputs. It uses advanced machine learning methodologies, such as deep learning and foundation models, to replicate human decision-making by identifying patterns within extensive, often unlabeled datasets. The advancement of Gen AI, demonstrated by tools like ChatGPT in 2022, has driven innovation and adoption, making it a crucial component in the development of artificial intelligence.

How does Gen AI operate ?



- Variational Autoencoders (VAEs) and Generative Adversarial Networks (GANs) are deep learning models used in Gen AI. They identify features and relationships within large datasets, improving the ability to produce realistic outputs.
- In a GAN, the generator and discriminator neural networks interact. The generator creates outputs, while the discriminator evaluates their authenticity, prompting the generator to refine its results for improved realism.
- Gen AI advancements, particularly transformer-based models like GPT-4, have enabled systems to process and produce human-like content across diverse applications.

Tools

Gemini



cohere



DeepScribe



tabnine



zapier

Slang.ai



tome



Tracing Its Evolution and Unveiling the Mechanics Behind this Intelligent Creativity



1948

Claude Shannon's paper introduced **n-grams**, a statistical model for generating text based on existing data

1950

Alan Turing's paper introduced the **Turing Test** to assess if machines can exhibit human-like intelligence

1952

Hodgkin and Huxley's **neural model** inspired the development of artificial neural networks in Gen AI

1965

Alexey Ivakhnenko and Valentin Lapa developed the **first learning algorithm** for feedforward neural networks to model nonlinear functions

2001

Yoshua Bengio and team developed the **Neural Probabilistic Language (NPL) Model**, enabling neural networks

1990

Jürgen Schmidhuber introduced **artificial curiosity** to drive learning agents toward exploring novel scenarios

1986

Rumelhart, Hinton, and Williams introduced **backpropagation**, a key algorithm for training neural networks

1979

Kunihiko Fukushima developed the **neocognitron**, an early deep convolutional neural network for pattern and digit recognition

2014

Ian Goodfellow introduced **GANs**, a breakthrough model where competing neural networks generate highly realistic synthetic data such as images and text

2015

Google's **DeepDream** highlighted AI's artistic potential by creating surreal and abstract imager

2016

DeepMind's **AlphaGo** showcased AI's strategic prowess by defeating Go player

2017

Transformer model transformed NLP with self-attention, enhancing tasks like machine translation and text generation

2021

OpenAI introduced **DALL-E**, enabling image generation from text and advancing AI's role in art and design

2020

OpenAI released **GPT-3**, showcasing versatility in generating human-like text for various applications

2019

OpenAI's **GPT-2** demonstrated the potential of large language models for AI-driven content creation

2018

Google AI launched **BERT**, enhancing NLP tasks and advancing chatbots and language understanding

2022

Stability AI launched **Stable Diffusion**, democratizing AI art creation through open-source innovation

2023

OpenAI introduced **ChatGPT**, facilitated human-like conversations, while **GPT-4** advanced multimodal capabilities by processing both text and visual data

2024

Multimodal AI advances, Agentic AI rises with Salesforce's Agent force, Sora enabling text-to-video, and the EU passes the AI Act

2025

DeepSeek's AI model, **DeepSeek-R1**, claims parity with OpenAI's models at lower costs, prompting tech sector concerns and a stock market dip



Generative AI: Transforming Industries with Rapid Adoption,...

The Rising Adoption and Influence of Gen AI

Gen AI is advancing rapidly and being widely adopted across industries. It enables applications such as text and image generation, coding, and more, with tools like ChatGPT, DALL-E, and Stable Diffusion influencing various fields. Domain-specific models are increasingly designed to meet industry needs efficiently. **By 2030, its market value is projected to reach USD 110 bn¹**, with applications extending to animation, gaming, and architecture.

Growing Investments and Cross-Industry Transformations

- **Global Investments:** In Q1 2024, **global venture capital investment in Gen AI reached USD 3 bn²**, with forecasts predicting a rise to USD 12 bn for the full year. In 2023, total Gen AI investments amounted to USD 21.3 bn, driven by major deals including OpenAI-Microsoft (USD 10 bn), Anthropic-Amazon (USD 4 bn), and Inflection-Microsoft (USD 1.3 bn).
- **Sector-Specific Investments:** Financial firms are doubling down on Gen AI, with 72%³ making moderate to large investments in 2025. The focus is on improving efficiency, customer experience, and employee productivity.
- **Tech Giants:** Companies like Nvidia are heavily investing in AI infrastructure, with plans to produce USD 500 bn⁶ worth of AI infrastructure over the next four years (2029).

Key predictions for the future of Gen AI technologies

- **Demand will increase for domain-specific Gen AI models:** The increasing adoption of Gen AI is shifting towards domain-specific models, with over 50% of enterprise models expected to focus on specific industries or functions by 2027, compared to 1% in 2023. Enterprises are anticipated to utilize and manage multiple customizable solutions for various applications.
- **Synthetic data will solve a variety of existing data challenges:** The adoption of synthetic data is anticipated to rise, with 75% of businesses expected to generate synthetic customer data using Gen AI by 2026, compared to less than 5% in 2023. Synthetic data addresses challenges such as cost, availability, imbalance, and privacy.
- **Sustainable Gen AI will focus on energy-conserving techniques:** The rising use of Gen AI has raised environmental concerns. By 2028, 30% of implementations are anticipated to utilize energy-efficient methods. Organizations can tackle sustainability issues by employing renewable energy, edge operations, and green computing practices.

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Generative AI in Payments




Reimagining Payments with Generative AI: A New Era of Intelligence

What is Gen AI?

Generative AI in payments improves efficiency and security by detecting fraud through transaction analysis and automating processes like invoice reconciliation and compliance checks. It assesses creditworthiness based on transaction behavior, supporting risk management and decision-making. Additionally, AI-driven chatbots facilitate customer interactions, reducing manual workload while streamlining financial operations.

Benefits of Gen AI in Payments

 **Fraud Detection and Prevention**

 **Speed and Convenience**

 **Personalized Customer Experience**

 **Data- Driven Insights**

 **Operational Efficiency**

 **Cost Reduction**

 **Enhanced Security**

 **Scalability**

 **Regulatory Compliance**

 **Innovation and Competitive Advantage**

Impact of Gen AI in Payments

Improving Fraud Detection and Prevention

Enhancing the Merchant Support Experience

Refining Underwriting Models

Generative AI is driving innovation in payments with smarter automation, enhanced fraud detection, and personalized user experiences



Enhanced Fraud Detection and Prevention

- Gen AI's ability to analyze vast datasets in real-time allows for the identification of complex fraud patterns that traditional systems might miss.
- AI models can adapt to evolving fraud tactics, providing a more robust defense against financial crime.
- The technology can also aid in generating synthetic data for fraud scenario testing, improving the accuracy of detection algorithms.



Personalized Payment Experiences

- Gen AI enables the creation of tailored payment options and recommendations based on individual customer behavior and preferences.
- AI-powered chatbots and virtual assistants can provide personalized customer support and payment assistance.
- Dynamic pricing models, driven by AI analysis of market trends and customer behavior, are becoming more prevalent.



Automation of Operational Tasks

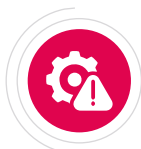
- Gen AI streamlines processes like data entry, reporting, and customer service, reducing manual effort and improving efficiency.
- This automation is particularly valuable in areas like payment reconciliation and dispute resolution.
- AI-led code generation can accelerate the modernization of legacy payment systems.



Improved Customer Onboarding and KYC/AML Compliance

- Gen AI automates identity verification and document processing, enhancing the speed and accuracy of customer onboarding.
- AI-driven systems can analyze regulatory documents to ensure compliance with KYC and AML regulations.
- This technology helps to reduce the risk of financial crime and improve regulatory adherence.

...powering smarter and safer payments



Real-time Risk Assessment

- Gen AI enables dynamic risk-scoring models that assess transaction risks in real-time.
- By analyzing factors like transaction amount, location, and user behavior, AI can provide a more accurate risk assessment.
- This is crucial for securing cross-border payments and mitigating financial risks.



Conversational Payments

- Gen AI powered chatbots and virtual assistants, are enabling users to make transactions, check balances, and receive support through natural language interactions.



Digital Core Modernization

- The ability for banks to have a strong digital core, allows for them to rapidly deploy new payment features, in response to market demands. Gen AI is aiding in this modernization.

Innovating Payments: AI Achievements in Financial Services

Gen AI is gaining traction in payment industry:



85% of banking IT executives already have a clear strategy for incorporating AI into new product development²

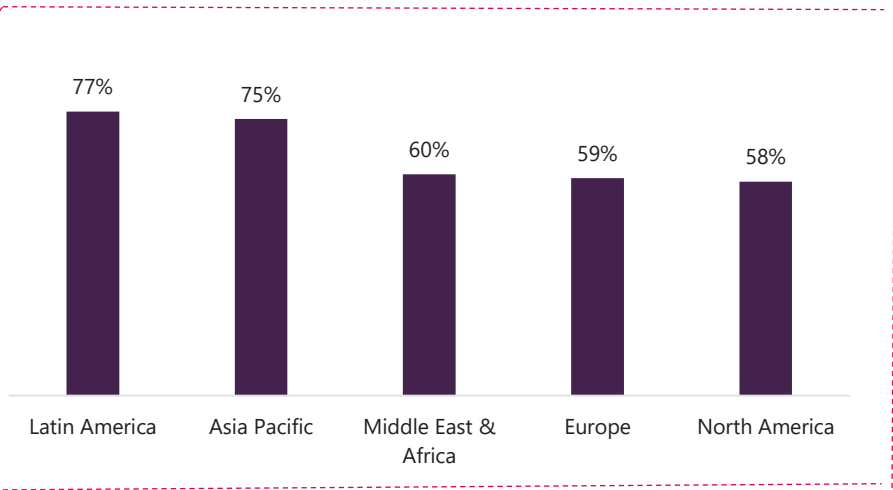


63% of banks confirm that the 'accelerated pace of tech innovation, automation and disruption' highly impact their payments business strategy and investment decision



59% of banks still struggle with legacy payments IT systems and infrastructure, limiting their ability to meet customer demands quickly and affordably

Adapting to Rapid Payment Innovations: Meeting Consumer and Commercial Demands¹



Accenture Payments Technology Reinvention Study, 2024

Key AI achievements related to Financial Services (2014-2023)³



Source: Evaluateserve analysis, Accenture¹, Paymo², Glenbrook³

Revolutionizing Payments: Generative AI is transforming the payments landscape...

Applications of Gen AI in payments

Generative AI stands to revolutionize the payments industry through a multifaceted approach that enhances personalization, security, and efficiency in digital transactions. This transformative technology offers substantial benefits to both businesses and consumers by streamlining processes and improving user experiences.

Key application areas

Customer Onboarding	Payment Processing	Customer Service and Support	Operations and Delivery
Generative AI automates KYC processes and risk assessments, expediting onboarding while ensuring compliance and reducing manual errors.	Advanced AI algorithms enhance fraud detection and prevention, optimize transaction routing, and improve the accuracy of cross-border payments, ensuring faster and more secure transactions.	AI-powered chatbots and IVR systems provide real-time, personalized assistance, resolving payment issues swiftly and enhancing customer satisfaction.	AI-driven automation of payment processes, including invoice management and approval workflows, increases operational efficiency and reduces processing times.
<u>Automated KYC Processes</u> <ul style="list-style-type: none">Streamlined Identity VerificationContinuous Monitoring and Alerts	<u>Fraud Detection and Prevention</u> <ul style="list-style-type: none">Advanced Pattern RecognitionContinuous Learning and Adaptation	<u>Personalisation and Customer Experience</u> <ul style="list-style-type: none">Tailored Payment RecommendationReal-Time Customer Support	<u>Automation of Payment Processes</u> <ul style="list-style-type: none">Automated Invoice ProcessingDynamic Approval Workflows
<u>Risk Management and Credit Scoring</u> <ul style="list-style-type: none">Enhanced Risk AssessmentDynamic Credit Scoring Models	<u>Improving Accuracy in False Declines</u> <ul style="list-style-type: none">Intelligent Transaction AnalysisAdaptive Fraud Detection Models <u>Cross-Border Payments</u> <ul style="list-style-type: none">Optimized Transaction ProcessingEnhanced Compliance and Fraud Detection	<u>AI in IVR Payments</u> <ul style="list-style-type: none">Enhanced Customer InteractionAutomated Information Gathering	

... with its application in varied use cases..

Customer Onboarding



Automated KYC Processes

- **Streamlined Identity Verification:** Generative AI automates the identity verification process by analyzing vast amounts of data with high accuracy. This reduces manual errors and speeds up onboarding, ensuring compliance with regulatory requirements while enhancing operational efficiency.
- **Continuous Monitoring and Alerts:** AI-powered systems continuously monitor transactions and customer activities in real-time, flagging any deviations from normal behavior. This proactive approach helps detect and prevent fraudulent activities, maintaining robust security and compliance.



Risk Management and Credit Scoring

- **Enhanced Risk Assessment:** Gen AI leverages advanced data analytics to evaluate a broader range of indicators, including alternative data sources like utility payments and social media activity. This comprehensive analysis enables more accurate risk assessments, allowing financial institutions to make informed lending decisions and mitigate losses.
- **Dynamic Credit Scoring Models:** AI-driven credit scoring models continuously learn and adapt to new data, improving their predictive accuracy over time. This dynamic approach ensures that credit scores reflect the most current financial behaviors and trends, providing a fairer and more reliable assessment of creditworthiness.

Payment Processing



Fraud Detection and Prevention

- **Advanced Pattern Recognition:** Generative AI analyzes vast datasets in real-time to identify unusual patterns and anomalies that may indicate fraudulent activities. This sophisticated detection capability allows payment systems to proactively mitigate risks and enhance security measures.
- **Continuous Learning and Adaptation:** AI systems continuously evolve by learning from new data, improving their ability to detect emerging fraud tactics. This adaptive learning ensures payment systems remain resilient against increasingly sophisticated fraud schemes, maintaining transaction integrity and customer trust.



Improving Accuracy in False Declines

- **Intelligent Transaction Analysis:** Generative AI utilizes advanced algorithms to analyze transaction data in real-time, identifying legitimate transactions with higher accuracy. This reduces the occurrence of false declines, ensuring that genuine payments are processed smoothly, and customer satisfaction is maintained.
- **Adaptive Fraud Detection Models:** AI-driven systems continuously learn from new data, refining their ability to distinguish between fraudulent and legitimate transactions. This adaptive approach minimizes false positives, enhancing the overall reliability of payment processing systems.

..to enhance overall offerings and improve customer experiences



Cross-Border Payments

- **Optimized Transaction Processing:** Generative AI enhances cross-border payments by optimizing transaction routing and processing. By analyzing vast amounts of data, AI can identify the most efficient pathways for transactions, reducing costs and improving speed.
- **Enhanced Compliance and Fraud Detection:** AI systems continuously monitor cross-border transactions for compliance with international regulations and detect potential fraud. This proactive approach ensures secure and compliant transactions, minimizing risks associated with cross-border payments.

Customer Service and Support



Personalisation and Customer Experience

- **Tailored Payment Recommendations:** Generative AI analyzes customer data to offer personalized payment options based on individual preferences and past behaviors. For instance, AI can suggest preferred payment methods at checkout, enhancing convenience and satisfaction.
- **Real-Time Customer Support:** AI-driven chatbots provide instant, personalized assistance, resolving payment issues and answering queries 24/7. This improves customer experience by ensuring timely support and reducing wait times.



AI in IVR Payments

- **Enhanced Customer Interaction:** Generative AI in IVR systems leverages natural language processing (NLP) to understand and respond to customer queries more accurately. This improves the quality of interactions, providing customers with relevant information and resolving issues efficiently.
- **Automated Information Gathering:** AI-driven IVR systems can automatically collect necessary information from callers before transferring them to human agents. This streamlines the resolution process, reducing wait times and enhancing overall customer satisfaction.

Operations and Delivery



Automation of Payment Processes

- **Automated Invoice Processing:** Generative AI streamlines the payment process by automating invoice management, including data extraction, validation, and reconciliation. This reduces manual errors and accelerates the payment cycle, enhancing overall efficiency.
- **Dynamic Approval Workflows:** AI-driven systems can automate approval workflows by analyzing transaction data and applying predefined rules. This ensures faster, more accurate approvals, reducing bottlenecks and improving cash flow management.

Leading banks are selective in where and how they align their generative AI investments

Generative AI is transforming the payments landscape by streamlining complex processes, enhancing fraud detection, and personalizing customer interactions. For instance, AI-driven chatbots can swiftly resolve payment issues, ensuring seamless and secure transactions, thereby boosting operational efficiency and customer satisfaction.

Top 3 payment areas where leading banks plan to use generative AI

69%

Consumer domestic payments

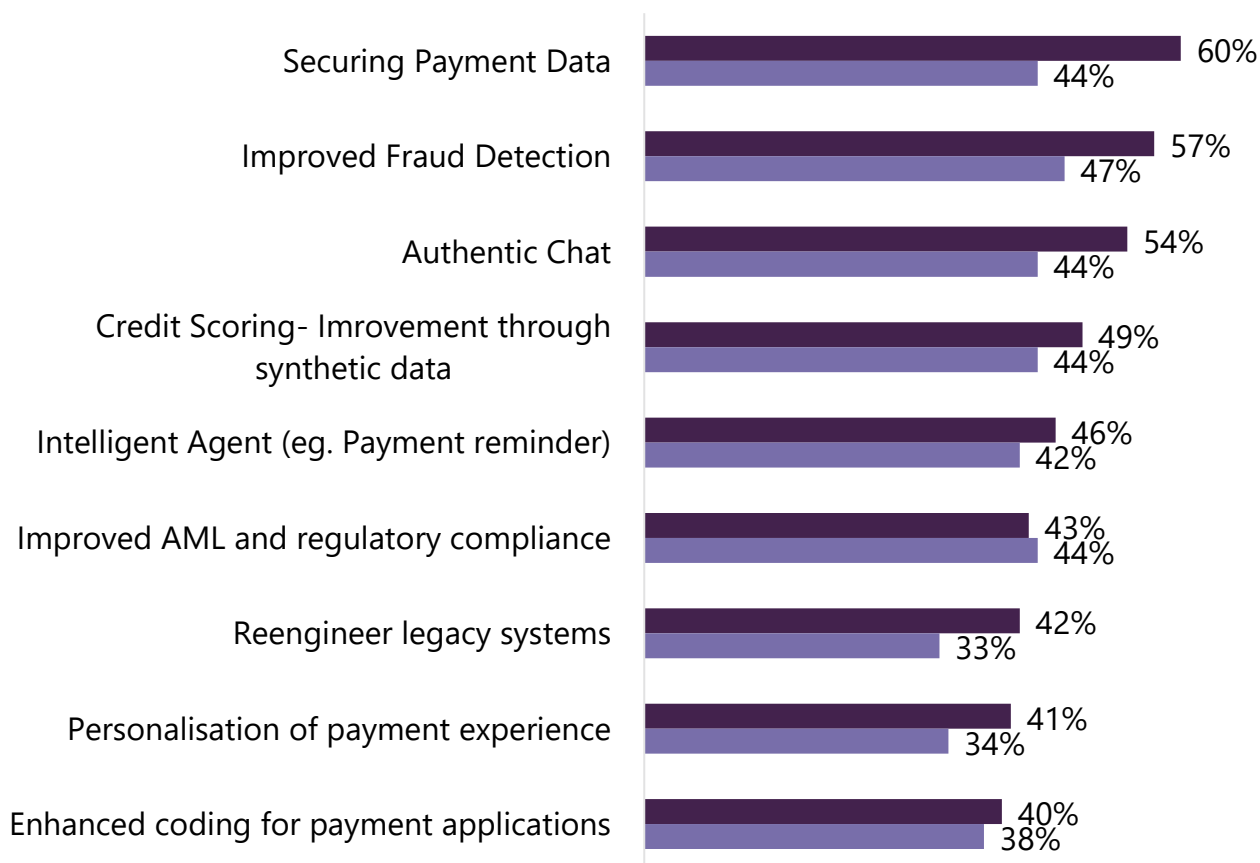
68%

Commercial domestic payments

68%

Corporate international payments

Leading banks have implemented generative AI extensively for these use cases in payments



Case studies reveal the transformative impact of Generative AI in payments...



HCL Tech implemented generative AI-powered real-time compliance checks for a leading retail bank. This solution enables the bank to instantly validate customer identities and cross-check them against various regulatory requirements, such as anti-money laundering (AML) and KYC guidelines.



DBS Bank has adopted generative AI for credit risk management. They use AI to enhance credit analysis, prepare memos, and review policy queries and facility agreements. This helps in making more informed and efficient credit decisions.



Mastercard is using Gen AI to double the speed of detecting compromised cards by predicting full card details from partial numbers found on the Dark Web. It can scan transaction data across cards and merchants, identifying new, complex fraud patterns more effectively.



Visa launched the VAAI Score, a generative AI tool that identifies and scores enumeration attacks in real-time, reducing fraud and operational losses while improving cardholder experience by providing a risk score for each transaction.



Form3 secured investment from Visa to enhance real-time payment infrastructures to improve risk management for financial institutions. This collaboration leverages Gen AI to scan data, identify patterns, and provide risk scores, helping banks manage fraud detection efficiently while meeting the demand for instant payments.



Stripe collaborated with OpenAI to power payments and subscriptions for such tools as ChatGPT and Dall-E. Stripe is also integrating GPT-4, into its own products and services to improve its products and user experiences, helping its clients with fraud management and conversion rate growth.



American Express integrated AI to enhance fraud detection, personalize customer experiences, and streamline credit risk assessments. AI-driven analytics enable real-time monitoring of transactions, personalized recommendations, and more accurate credit evaluations, improving operational efficiency and risk management.



Paytm has partnered with Perplexity, an AI-driven answer engine, to integrate AI-powered search into its app, enhancing digital accessibility and financial decision-making.



NatWest and IBM collaborated to enhance the bank's virtual assistant, Cora, that will use generative AI to provide customers with access to a wider range of information through conversational interactions.

...with industry experts acknowledging its ability to enhance security, and efficiency



Vijay Shekhar Sharma

Founder & CEO, Paytm

"AI is transforming the way people access information and make decisions. With Perplexity, we are bringing the Power of AI to Mns of Indian Consumers, making knowledge and financial services more seamless and accessible"



Nimish Panchmatia

Chief Data and Transformation Officer, DBS

"We see Gen AI as a co-pilot to supercharge our employees, and our immediate focus has been on driving efficiency gains and quality improvement"



Johan Gerber

Mastercard

"Until now fraudsters may have thought they were operating in obscurity, seeking to launder the card details of Mns of unsuspecting victims. Thanks to our world-leading cyber technology we can now piece together the jigsaw - enhancing trust to banks, their customers and the digital ecosystem as a whole"



Michael Jabbara

SVP Global Head of Fraud Services, Visa

"With access to advanced technology, fraudsters are monetizing stolen credentials faster than ever before. Enumerated transactions impact the entire ecosystem, and with the VAAI Score, we're giving our clients a sophisticated tool that can help prevent cardholder accounts from being compromised and stop fraudulent transactions before they happen"



Amit Mallick

Digital Payments Lead, Europe, Accenture

"By harnessing the power of AI, we're not just streamlining transactions but transforming them into intelligent interactions. This is setting a new standard for innovation in payments"



Ravi Radhakrishnan

CIO, American Express

"we are investing in Gen AI to create value for our customers and colleagues. Gen AI can help us create more personalized and engaging experiences for our customers and give our colleagues new tools to help them perform their jobs more efficiently"



David Rolf

Head of Visa Ventures, Visa

"With generative AI's potential to be one of the most transformative technologies of our time, we are excited to expand our focus to invest in some of the most innovative and disruptive venture-backed startups building across generative AI, commerce and payments"



Wendy Redshaw

Chief Digital Information Officer, NatWest Group's Retail Bank

"we're working with companies like IBM to leverage the latest generative AI innovations that will help make Cora feel even more 'human' and, most importantly, a trusted, safe and reliable digital partner for our customers"

...However, managing specific risks is essential for safe and effective deployment



Security Vulnerabilities

- **AI-Driven Fraud:** The use of generative AI can lead to sophisticated fraud techniques, including deepfake attacks, posing significant security threats.
- **Expanded Vulnerabilities:** Integrating AI into payment systems can introduce new security vulnerabilities that may be exploited by malicious actors.



Data Privacy Issues

- **Handling Sensitive Information:** Generative AI systems require extensive data, including sensitive payment details, necessitating stringent data protection measures.



Regulatory Compliance

- **AI-Driven Fraud:** The use of generative AI can lead to sophisticated fraud techniques, including deepfake attacks, posing significant security threats.
- **Expanded Vulnerabilities:** Integrating AI into payment systems can introduce new security vulnerabilities that may be exploited by malicious actors.



Bias and Fairness

- **Algorithmic Bias:** AI models may inadvertently reflect biases present in their training data, leading to potential unfair treatment of certain customer segments.



Operational Challenges

- **Integration Complexity:** Incorporating AI systems into existing payment infrastructures can be technically challenging and may require significant modifications to current processes.
- **Resource Allocation:** Developing and maintaining AI systems demands substantial investment in technology and expertise, which can strain resources.

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Agentic AI in Payments



Agentic AI offers a paradigm shift, moving beyond traditional automation to enable intelligent, self-acting systems that can adapt and optimize payment processes

Overview of Agentic AI

Agentic AI comprises autonomous AI agents that adapt in real time, handle complex tasks, and make decisions with minimal human input. Leveraging large language models (LLMs) and advanced reasoning, these systems enhance automation in enterprises by optimizing workflows and decision-making processes.

AI, and agentic AI could have a bigger impact on the economy and finance than the internet era.

- Citi Group, January 2025

Applications of Agentic AI in Payments

Fraud Detection and Prevention

- Agentic AI can analyze real-time transaction data, identify anomalies, and autonomously block suspicious activities.
- It can learn evolving fraud patterns and adapt its detection strategies accordingly.

Personalized Payment Experiences

- Agentic AI can tailor payment options and recommendations based on individual customer preferences and behavior.
- It can provide proactive support and guidance throughout the payment journey.

Automated Dispute Resolution

- Agentic AI can analyze dispute claims, gather evidence, and autonomously resolve disputes, reducing manual effort and processing time.

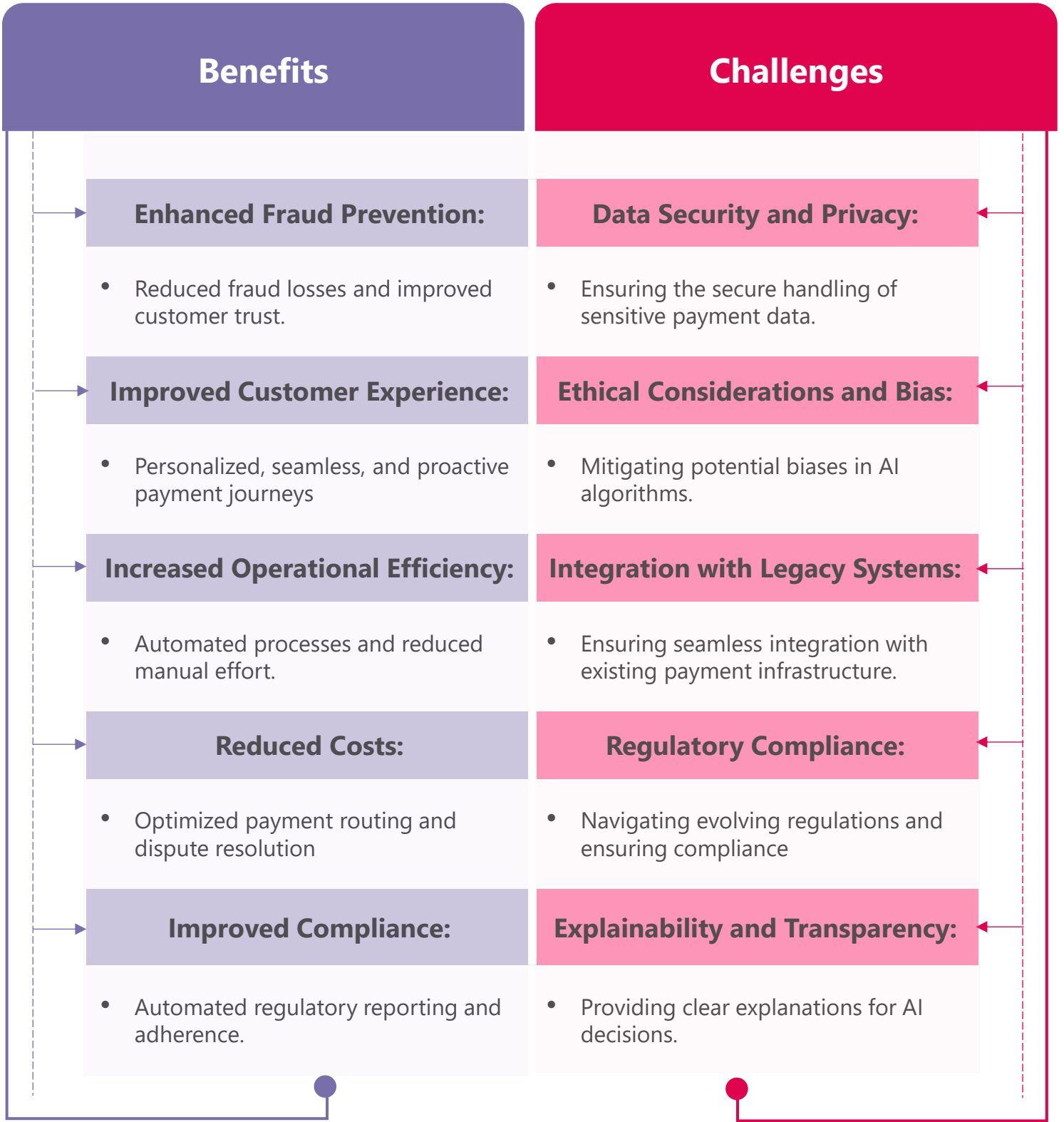
Compliance Reporting

- Agentic AI can automate compliance checks, generate regulatory reports, and ensure adherence to evolving regulations.

Payment Orchestration

- Agentic AI can optimize payment routing, gateway selection, and currency conversion to minimize costs and maximize efficiency.

Agentic AI introduces groundbreaking possibilities for payments, yet its success hinges on the evolution of legal frameworks, cybersecurity measures, and industry backing



From Code to Cognition: The Future of Agentic AI in Payments

Real-time Fraud Prevention



Agentic AI will enable near-instantaneous fraud detection and prevention.

- Detect subtle deviations from normal behavior.
- Flag suspicious activity even if it mimics legitimate patterns
- Act independently to block, flag, or delay transactions.

Hyper-Personalized Payments



AI agents will anticipate customer needs and offer highly tailored payment experiences.

- Suggesting preferred payment methods (e.g., credit card, BNPL) on need basis.
- Offering real-time discounts or loyalty rewards relevant to the user's behavior.
- Agentic AI can act as a personal financial concierge

Autonomous Payment Ecosystem



AI agents will orchestrate complex payment flows across multiple channels

- Self-initiating transactions
- End-to-end payment orchestration
- Intelligent payment routing
- Interoperability across ecosystem
- Personalized finance governance
- Autonomous risk and compliance

AI-Driven Payment Security



AI agents will orchestrate complex payment flows across multiple channels

- Autonomous Threat Detection & Response
- Adaptive Authentication
- Behavioural Biometrics
- Multi-Layered, Context-Aware Security

With early adopters already entering the space, the momentum around this technology is set to grow rapidly

While dedicated "Agentic AI in Payments" solutions are still developing, many companies are integrating these capabilities

Financial Technology Companies

Building AI-powered fraud detection and risk management platforms.

Payment Gateways

Embedding AI agents for payment routing and optimization

Banks and Financial Institutions

Developing AI-driven solutions for personalized customer experiences and compliance.

Cybersecurity Companies

Building AI agents to detect and prevent payment fraud.

While dedicated "Agentic AI in Payments" solutions are still developing, many companies are integrating these capabilities

Examples of some big payment companies taking initiatives to offer Agentic AI Solutions

1

Visa Intelligent Commerce

Intelligent Commerce is a suite of integrated APIs and a partnership program, to enable AI platforms and developers to incorporate payments directly into the commerce journey. This allows user to securely upload their card information to an AI agent via Visa's payment passkeys, provide payment instructions, enabling the AI agent to find and purchase items or services on their behalf.



2

Mastercard's Agent Pay

Mastercard's Agentic Pay offers Agentic Tokens, which the company said builds upon tokenization capabilities that power global commerce solutions like mobile contactless payments, along with programmable payments such as recurring expenses and subscriptions.

3

PayPal Agent Toolkit

PayPal Agent Toolkit enables developers to integrate its payment processes into the agentic AI workflow.



4

RAY Agentic-AI Toolkit

Razorpay Ray Agentic-AI is a next-generation AI toolkit launched by Razorpay at its flagship event, FTX 2025. It represents a major leap in automating and enhancing financial operations using Agentic AI—AI systems that not only assist but also act autonomously on behalf of users.



5

Stripe Agent Toolkit

The Agent SDK by Stripe, also known as the Stripe Agent Toolkit, is a developer toolkit designed to integrate Stripe's financial services into agentic AI workflows. It enables AI agents to autonomously perform financial operations via Stripe's APIs. With the company's Stripe Issuing technology, agents can create single-use virtual credit cards that can be employed to pay for products with a simple LLM function call.



To Summarize...



“The rise of agentic AI signals that generative AI is just one phase in a broader technological evolution, not its pinnacle”

Generative AI is at the forefront of a new era of intelligent engagement—transforming how financial institutions interact with customers, manage operations, and derive insights.

Agentic AI complements this by introducing autonomous decision-making—enhancing fraud detection, optimizing payment flows, and adapting in real time.

Together, these technologies are creating a more secure, efficient, and inclusive payments framework. The number of real-world use cases for Generative and Agentic AI in payments is expanding rapidly—from intelligent customer service and dynamic risk scoring to autonomous reconciliation and real-time compliance monitoring. Major global payment companies are accelerating adoption, embedding these capabilities into their core systems to drive innovation and competitive advantage.

With a growing consensus among industry leaders about the transformative potential of these technologies, the outlook is both positive and ambitious. Organizations that strategically embrace Generative and Agentic AI will be best positioned to lead in a digital-first world, delivering seamless, intelligent, and future-ready payment experiences.

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Evalueserve Technology, Media, & Telecom (TMT) Practice

A trusted advisory and transformation partner for businesses operating in the IT and communications infrastructure, software services, mobile and integrated operations, security, and internet and digital services space.

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Powered by mind+machine™



Who We Are

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5000+ professionals



250+ TMT consultants



25+ Languages

Capable of delivering projects

Global Footprint

Many of our team members are co-located with clients. We can be anywhere you need us to be!



Client Base



300+ Fortune 1000 companies



70%
14 of Top 20 Global Software and Services Firms



80%
4 of Top 5 Global Infrastructure and Services Companies



Top 3 Cloud Service Providers

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